

included in this study. Each subject was randomly assigned to the sequence of oxygenation methods : hyperoxygenation with an oxygen concentration of 10% higher than presuctioning oxygen concentration (experimental method) and non-hyperoxygenation (control method) before and after suctioning. Both methods were done through ventilator in CPAP MODE by pushing MANUAL BREATH BUTTON 10 times in 7-8 seconds. Transcutaneous oxygen saturation and pulse rate were recorded at four periods : 5 minutes before suctioning (baseline values), immediately after suctioning, the lowest value of oxygen saturation, and after the end of oxygen administration post suctioning. The time length when oxygen saturation and pulse rate returned to the baseline were recorded.

Data were analyzed by paired t-tests to compare the oxygen saturation and pulse rate between baseline values and values in other periods and between time length of oxygen saturation and pulse rate in each method. Analysis of variance for repeated measure was utilized to compare the difference in oxygen saturation and pulse rate in each comparison period between the two methods.

The results were as followed :

1. In control method, the post suctioning oxygen saturation in all periods was all significantly lower than the baseline value ($P < .001$).

2. In experimental method, the post suctioning oxygen saturation in other periods except the immediately after suctioning period was significantly lower than the baseline value. ($P < .05$)

In this study, the means of the lowest oxygen saturation were 93.80% in the experimental method and 91.90% in the control method while the means of baseline values were 96.10% and 96.00%, respectively.

3. The difference of the baseline oxygen saturation and the other periods in the experimental method were significantly lower than in control method ($P < .001$).

4. The time length when oxygen saturation value returned to the baseline value in the experimental method was significantly shorter than the control method ($P < .01$).

5. The pulse rates in all periods were not significantly different from the baseline value ($P > .05$).

In conclusion, the oxygen concentration delivered 10% above presuctioning oxygen level in the experimental method can help minimize hypoxemia more than in the control method. The lowest value of oxygen saturation in the experimental method decreased from baseline value 2.30% while in the control method decreased from baseline value 4.10%. And the time length when oxygen saturation returned to baseline level in the experimental method was shorter than the control method.